

$^{53}\text{K} \beta^- \text{n decay:30 ms }$ **2006Pe16**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Yang Dong, Huo Junde		NDS 128, 185 (2015)	10-Jul-2015

Parent: ^{53}K : E=0; $J^\pi=(3/2^+)$; $T_{1/2}=30$ ms 5; $Q(\beta^- \text{n})=14510$ SY; % $\beta^- \text{n}$ decay=75 11

$^{53}\text{K-Q}(\beta^- \text{n})$: 14510 510 (syst,[2012Wa38](#)).

$^{53}\text{K-T}_{1/2}$: From Adopted Levels of ^{53}K .

$^{53}\text{K-}\% \beta^- \text{n decay}$: % $\beta^- \text{n}$ =64-85 ([2006Pe16](#)).

^{53}K isotope produced in spallation reaction by bombarding a UC_x target by a 1.4 GeV proton beam produced by the CERN proton-synchrotron booster (PSB). Spallation products analyzed using the high resolution separator (HRS). Measured $E\gamma$, $\gamma\gamma$, β , $\beta\nu$ coin, $\beta\nu\gamma$ coin, $\beta\gamma$ coin, $\beta\gamma\gamma$. γ rays detected using two large Ge clusters from the MINIBALL array. Low energy neutrons detected using six detectors each composed of a thick BC400 plastic scintillator. High energy neutrons detected using 11 curved BC400 scintillating plastic bars from the TONNERRE array. β particles detected using a cylindrical plastic scintillator.

 ^{52}Ca Levels

$E(\text{level})^\ddagger$	$J^\pi{}^\dagger$
0	0^+
2563 1	2^+
3150 2	

† From Adopted Levels.

‡ From $E\gamma$.

 $\gamma(^{52}\text{Ca})$

E_γ	$I_\gamma{}^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
2563 1	52 9	2563	2^+	0	0^+
3150 2	12 3	3150		0	0^+

† For absolute intensity per 100 decays, multiply by 0.75 11.

Delayed Neutrons (^{52}Ca)

$E(n)^\dagger$	$E(^{52}\text{Ca})$	$I(n)^{\ddagger\#}$	$E(n)^\dagger$	$E(^{52}\text{Ca})$	$I(n)^{\ddagger\#}$
490 10		19 7			
640 15		34 11			
740 15		100			
940 20		99 34			
1110 30		19 14			
1260 35		32 10			
1500 45		26 9			
1900 60		23 9			
2310 80		87 26			
350×10^1 15		64 20			
422×10^1 20		39 16			
2563		52 9			
3150		12 3			

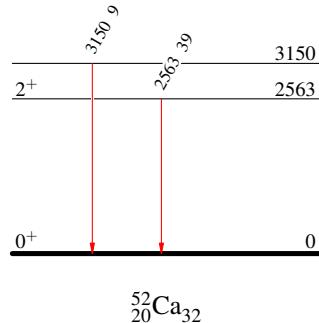
† Neutron energy in the lab system.

‡ Relative intensity of the neutron group unless otherwise stated.

For absolute intensity per 100 decays, multiply by 0.75 11.

^{53}K β^- n decay:30 ms 2006Pe16Decay Scheme

Legend

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays $^{52}_{20}\text{Ca}_{32}$